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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,479	03/23/2004	Leland M. Vane		1696

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EXAMINER
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FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/806,479

Applicant(s)

VANE ET AL.

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2, 3, 4, 7, 9, 10, 11, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Vane et al (US Patent 6,881,364)(hereinafter Vane). Vane discloses the composition or membrane and gels formed from the composition including the PVA, amine and aldehyde and silicon dioxide as claimed (entire disclosure, see example 5).

The applied reference has a common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8, 10, 12, are rejected under 35 U.S.C. 102(b) as being anticipated by Linder et al (US Patent 5,039,421)(hereinafter Linder). Linder discloses the composition or membrane as claimed in claims 1-2, 7, 8, the membrane is a composite including a layer of a hydrophilic material or composition selected from polyalkylamines, polyvinyl alcohol and its copolymers (abstract t, column 7, lines 28-65, more particular lines 63-68, bridging column 8, lines 1-7). The composition of the coating solution can include from 1 to 30% by weight of the monomer or polymers (column 14, lines 18-28). The addition of aldehyde to produce an in situ chemical reaction (or crosslinking) is also disclosed (column 8, lines 28-63 (see line 36 in particular)). Regarding claim 3, polyallyl amine, polyvinyl amines, pyridines are also disclosed (see column 7, lines 39-66, column 8, lines 17-18).

Regarding claim 4, polyvinyl alcohol discussed above (see column 7, lines 63).

As to claims 5-6, polyalkylamines containing the claimed groups are disclosed by Linder e.g. pyridines containing nitro, chloride, sulfonyl, etc (column 9, lines 11-21).

Regarding claims 10, 12 the process e.g for removing salt from organic solutes, and purification of chemical process effluents, is disclosed in Linder (see column 8, lines 23-26, and column 12, lines 51-68, through column 13, lines 1-2, column 15, lines 21-36).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Linder et al (US Patent 5,039,421)(hereinafter Linder) as applied to claim 1 above and further in view of Friensen et al (US Patent 5,753,008)(hereby patent '008). Linder fails to disclose using the membrane in vapor permeation or pervaporation. Patent '008 teaches using polyamide membranes for pervaporation, in particular membranes including a blend of polyvinyl alcohol and polyamine (column 6, lines 4-18, and lines 25-52). It would have been obvious to one skilled in the art at the time the invention was made to use a membrane having a crosslinked blend of PVA and a polyamine, e.g. forming a polyamide layer, as the one disclosed in Linder ('421), for the vapor separation, based on the inherent membrane layer selectivity.

6. Claims 9, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linder et al (US Patent 5,039,421)(hereinafter Linder).as applied to claim 1 above and further in view of Kuprathipanja et al (U S Patent 5, 127,925)(hereinafter patent '925). Linder fails to disclose adding adsorbent to the membrane layer or membrane composition. Patent '925 suggest making a membrane from a polyamide or using a polyamide membrane composition to from a membrane containing adsorbents, e.g.

activated carbon, silica, etc.(column 5, last paragraph, bridging column 6, lines 1-4, and column 6, lines 10-27, and claims 1-9). It would have been obvious to one skilled in the art at the time the invention was made to add inorganic dioxide to a polyamide membrane, or composition, as the resulting membrane from the claimed composition of claim 1 disclosed by Linder. As to claims 18-20, Linder discloses the polyamide content not greater than 30%, however, one skilled in the art at the time the invention was made can expect formation of a dense product with a large thickness by increasing the amount of the polymer forming composition.

7. Claims 1, 13, 15, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehouse et al (US Patent 6,337,358)(hereinafter patent '358) in view of Linder et al (US Patent 5,039,421)(hereinafter Linder) and Kuprathipanja et al (U S Patent 5,127,925)(hereinafter patent '925), and Bair (US Patent ~~4~~<sup>5</sup>,482,773)(hereinafter Bair. The patents discussed above fail to disclose providing the composition (membrane) in particle form. Patent '358 teaches a composition including silica, activated carbon, or carbon black (adsorbents), modified with polymerizable monomers or polymers and crosslinked; the polymerizable monomers include polyamines, polyethyleneimine, polyvinylpyridines, polyvinyl alcohols, polyvinylpyrrolidone, derivatives and combinations thereof (abstract, column 5, lines 34-52, column 11, lines 50-68, and column 12, lines 1-49, and column 15, lines 44-57). The composition including aldehyde, or the use of the composition as adsorbent in a column is not disclosed in patent '358. based on 'the teaching of 'Linder it would have been obvious to one skilled in the art to crosslink the polymeric particle composition by adding aldehyde, e.g. to fix or react the PVA and

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polyamine with the particles, or form a polymeric matrix containing the adsorbent. It would have been further obvious to one skilled in the art at the time the invention was made to use the particles, as in conventional particle bed, as disclosed in Bair for polymeric fiber coated carbon particles ( Abstract, column 1, lines 51-61, column 2, lines 35-60), for separation of gases and vapor, or adsorbing impurities from liquids.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional references to Linder et al are substantially equivalent to patent '421. Additional cited reference represent the state of the art in terms of the composition containing amine and pva

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Ana M Fortuna', is positioned above the printed name.

Ana M Fortuna  
Primary Examiner  
Art Unit 1723

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